MEMORANDUM FOR: Bruce Johnson

It appears to me there is a misunderstanding here. The establishment of standards is a function now assigned to the IHSA. I view this responsibility as essential to the ability of the IHSA to meet his assigned responsibilities.

As a consequence, the Standards Committee should report directly to the IHSA. He will provide guidance and promulgate approved standards.

A question here is why an HN is needed.

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Information Handling Systems Architect

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MEMORANDUM FOR: Deputy Director for Administration

FROM: [redacted] STAT
Information Handling Systems Architect

SUBJECT: Information Handling Problems Beyond the Purview of the Information Handling Architect

REFERENCES:
A. Information Handling Study, 28 Aug 80

B. Memo to EXCOM Membrs fm SA/DDCI dtd 22 Sep 80, Subj: Mins. of EXCOM Mtg, 10 Sept 80 (EXCOM 9120-80)

C. Memo to DDA fm SA/DDCI dtd 13 Jan 81, Subj: Recommendations of the IHTF (EXCOM 81-9002)

1. There are three major management problems relevant to the development of information handling systems (IHS) in the Agency for which managerial solutions have not been sought. The first two were identified in reference A, but no recommendations for their resolution were discussed. The third was identified as a consequence of the familiarization process for the IHSA. They are:

- Diffusion of project control responsibility
- Excessive accumulation of data
- Accreditation of system requirements.

The purpose of this memorandum is to bring these three problems to your attention, because I judge them to dominate the efficacy of the Agency's drive to manage effectively a rapidly expanding IHS investment. They are discussed briefly in the following paragraphs.

2. Diffusion of Control Responsibility

There does not appear to be any formal process for the approval of information handling systems projects, nor the management control above the level of the project officer. Current

practice is that projects are authorized by the Deputy Director whose budget item it is. The establishment of a project office and the selection of the project manager is at the election of that Deputy Director, except for those instances when the EXCOM has decided to deal with the matter. Since there are no criteria for EXCOM review and approval, the environment is principally one of local option.

After the project is established, the mechanism of management control is usually the Steering Committee. The usual operation of such a committee is to assemble quarterly (or at some other periodic frequency) to receive a brief status report. No decisions or program guidance are required.

This process is in contrast to the DoD-type environment in which management reviews under a designated authority are held at major milestones, and each such is a decision point (e.g., go ahead to the next phase, continue in this phase until identified problems are solved, add or delete capabilities, or stop). The DoD milestone reviews are preceded by detailed supporting staff reviews of key project aspects, so that at the milestone review, the panel's attention can be focused on the key issues. (Periodic, e.g., quarterly, top-level users review meetings are valuable and commonly used but are not a replacement for specific assignment of program control responsibility.)

Coordination, integration, and effective resource utilization at an Agency level are very difficult in a local option environment. I believe specified Agency-level control processes are needed.

3. Accumulation of Data

The current information/data generation rate is high and going much higher over the next several years. The analytic processes associated with overhead collection systems are generating data at an astonishing rate. We are also now acquiring powerful word processing equipment to be broadly distributed throughout the Agency. This type of equipment approximately doubles the paper productivity of a typical staff. Further, these data generation capabilities will shortly be compounded by word processing and message distribution facilities in the Ruffing Center and the SAFE system.

There do not seem to be adequate forcing functions to limit the distribution of this information nor its retention. As we move increasingly to electronic media for the development and distribution of information, more and more is being retained on disk for real time retrieval. (The disk farm is now up to the first

floor and rising.) The availability of the aforementioned facilities is clearly going to sharply increase the demand for real time storage.

Part of our problem in dealing with this information explosion is conceptual. Officially, all such data or information is viewed in the context of a "record." A record, once created, is not approved to be destroyed without permission. Further, it has to be reviewed on an individual basis, at specified intervals for classification downgrading. The regulations pertaining to records management were written in the context of reports and diplomats' cables. In this context, the review process required a small fraction of the effort required to create the record. Today, we are in an environment where the review for disposal, or the sources and methods review for downgrading, will require significantly more effort for a large portion of the "records" than was required for their automated generation. It is an impossible manpower situation.

It is necessary for us to depart from the total reliance on the concept of a "record," and start viewing much of this material simply as data. (And much of it is--such as entry of a few data fields into a database). The current regulations are so lacking in relevance to our environment that they cannot be and are not being applied to much of the electronic media data. Unfortunately, the manner of treatment of records is under the control of the National Archives and Records Service at the National Archives and not at the Agency's discretion.

We need effective motivational and monitoring factors to limit dissemination and get archival and purging of data comparable to the cost factor in private industry. (The disk data block charges for disk storage in the private environment are a powerful motivator to get the stuff off when it is no longer useful.) Pushing solely for archival does not seem to be the right answer, because that simply transfers the problem to archival management. Much of the data is simply the detritus of the daily effort of Agency's professionals, and should be disposed of.

A top-level, intra- and inter-agency look at the whole problem appears to be needed. We need to bring a new perspective to the way this material is handled and soon. Otherwise, within a few years, I believe the accumulation of information is going to totally overwhelm us.

4. Accreditation of System Requirements

The source of the problem is probably the old aphorism, "The user is responsible for requirements." While this functional assignment sounds logical, it is a simplistic concept that can lead to real problems if interpreted as the assignment of an exclusive

prerogative to the user. Some of the principal sources of such problems are:

- Lack of a reconciliation of the user's requirements with the implementation environment;
- Inadequate attention to adjunct user requirements; and
- Lack of a consolidation and validation mechanism for requirements derived from a community of users.

The first involves an interactive process between the user and developer. The system requirements should evolve from the functional requirements as the consequence of an interplay between the techniques and mechanisms of their implementation and the restructuring of user organizations or operations in conjunction with the new system. One of the worst mistakes that can be made is simply to automate current procedures; the result is usually a system several times the size and cost as would satisfy the need. The implications of such a direct transformation approach are not always well understood by user organizations.

With reference to adjunct requirements, there is an increasing functional complexity of Agency systems due to the increasing involvement of adjunct users. Instead of a system like PERSIGN, which is a personnel management system with a homogenous set of users, we are now developing systems like LIMS, a logistics system with many adjunct user organizations. The problem of the definition of the requirement for such a system can be difficult, particularly when IOC and funding constraints force compromises.

Lastly, there is the problem of requirements for general services systems. The requirement for these systems drive their cost, availability, and acceptance just as they do for any other. The problem is the establishment of an acceptable, but not excessive, set of requirements. The Agency history has been that the developer sets the requirements for such systems, based on user surveys and/or projections of historical use data. A distinct hazard with this process is the natural migration of management concern to the technical issues of implementation once the process has begun, to the detriment of user interest.

All of these examples reflect a strong need for accreditation of a new systems functional requirement. For complex systems, this can only be done at an Agency-wide level, since the problem is an ecumenical one. It also requires concentrated top-level attention, since the problems are complex. They cannot be successfully dealt with in an EXCOM-type project review unless the key issues and tradeoffs have already been identified and analyzed.

5. Conclusions and Recommendations

If not dealt with directly, I believe the foregoing problems will defeat any effort to provide integrated planning and management of the information handling systems resources of the Agency. The IHSA will simply be an historian, a data source, and a liaison point.

To respond to these problems, the following recommendations are made:

1) The IHSA be assigned the responsibility to write a set of Agency directives defining prescribed processes for the development of IHSs. The procedures specified will involve the milestone approach, commonly applied in the industry, with assigned management responsibility above the project level. The procedures will be divided into classes, from large systems requiring milestone review and approval by EXCOM, to small systems to be managed by the responsible or lead directorate. An appeal option will be incorporated into the decision process. The procedures will include documentation requirements for all categories of systems and standard format specifications for all deliverables.

2) The IHSA be assigned the responsibility for accreditation of system requirements for the two larger categories of systems.

3) The IHSA be assigned responsibility for a coordinated effort, involving all of the directorates, plus the special concerns of OIS/DDA, ODP/DDA, and OS/DDA, to formulate an effective response to the data accumulation problem. Coordination with external authorities and the Intelligence Community will be required.

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